The "$\underline{A}_2$" state of $\underline{a}_2^{m-1}$.

The expression of linkage of Spm with the wx locus in chromosome 9.

I. 8731B-2 x 8726-2

The fully pigmented kernels have no active Spm in the endosperm. The colorless kernels with pigmented spots received an active Spm from the ear parent. The apparent linkage of this Spm with the wx locus is 9.5% (42 "crossovers" in a total of 439). The linkage may be closer than these data suggest. Some transpositions of Spm may have occurred in the ear parent before the meiotic divisions. Meiotic segregation could then produce a gamete carrying the Wx locus and Spm, the association not being related to crossing over.

II. 8735E-1 tiller ear x 8726-2

The pericarp variegation is an expression of the "$\underline{A}_2$" state of $\underline{a}_2^{m-1}$. Anthocyanin pigment is absent in those pericarp cells that have an active Spm. It is produced in those cells having no active Spm, and the intensity resembles that given by the standard $\underline{A}_2$ locus. (Pigment intensity is always greater on the sides of the kernel than on the top. See photo. of self-pollinated ear of plant 8735E-1.)

Linkage of Spm to the wx locus is close, the apparent crossovers being 11 in a total of 253 kernels or 4.3%.

III. 8735E-5 self-pollinated. This photograph shows the phenotypes of kernels that appeared on the self-pollinated ear of a plant having one active Spm, linked to the wx locus. Among the 245 kernels on this ear, the following is evident:

(1) Normal ratio of Wx : wx = 181 Wx : 64 wx (¾ = 61¼)

(2) One Spm in parent: Ratio of "No Spm" (fully pigmented kernels) to kernels with active Spm (colorless kernels with pigmented spots) is 66 : 179.

(3) Linkage of Spm with wx is expressed:
117 in the Wx class to 62 in the wx class.

(4) This linkage is also shown in the relation between the phenotype and the dose of Spm in the kernel. The higher the dose of Spm, the fewer and smaller the pigmented spots. The majority of kernels with only a few specks of pigment as in the wx class. Kernels with many pigmented spots, some of which are large are present in both classes but mainly in the Wx class.